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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/044,394	01/11/2002	Kenneth M. Wilson	10012382-1	9298

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HEWLETT-PACKARD COMPANY
Intellectual Property Administration
P.O. Box 272400
Fort Collins, CO 80527-2400

EXAMINER	
PORTKA, GARY J	

ART UNIT	PAPER NUMBER
2188	

DATE MAILED: 09/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/044,394	WILSON ET AL.	
	Examiner	Art Unit	
	Gary J. Portka	2188	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 July 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,5-14,17-24 and 27-35* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-2,5-14,17-24, and 27-35* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1, 6, 10, 11, 13, 18, 21-23, 28, and 31 have been amended by Applicant. Claims 1-2, 5-14, 17-24, and 27-35 are pending.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 6-10, 18-20, and 28-30 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. Claims 6, 18, and 28 each recite "determining an access time to acquire the piece of data", and "from the acquired access time, determining a time taken to complete the memory access". First, "the acquired access time" lacks proper antecedent basis, since the data is acquired, while the access time is determined. Second, the term "access time" is being used in a manner inconsistent with claim 1, for example, and thus the quoted limitations render the limitation vague and indefinite. In claim 1 the access time is the time to acquire the data, and is compared with a threshold. In claims 6, 18, and 28, the access time is also the time to acquire the data, but is used to determine a "time taken to complete the memory access", this latter time the time compared with a threshold. It is unclear what this extra time determination step involves. Hereinbelow Examiner will interpret a comparison of a time to acquire a piece of data with a threshold time as meeting these limitations. Claims 7-10, 19-20, and 29-30 incorporate these limitations by dependency.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 6-7, 11, 18, 21, 28, and 31 are rejected under 35 U.S.C. 102(e) as being anticipated by Horst et al., US 6,549,977 B1.

7. As to claims 6, 18, and 28, Horst discloses *a method for managing a memory system comprising upon accessing the memory for a piece of data used by a first process* (system generally shown in Fig. 1, and any read access is inherently to be used by a process), *a processor working with the memory continuing functions until stalled* (see col. 7 line 56 to col. 8 line 18, which describes mixed reads/writes where operation is continued until stalled due to running out of commands), *determining an access time to acquire/complete the memory access, and comparing the time to a threshold* (see col. 8 lines 35-41, which describes comparing a read time to a threshold; if the read time is less than the threshold when the memory access completes, then the time to acquire data from the memory and complete the access has been compared with the threshold), *and taking an action based on the results* (see col. 8 lines 35-41, which describes flushing when a read takes too long, and not flushing if it does not).

8. As to claim 7, in Horst the action taken is one of the recited actions, that is, the flushing of the cache (which is occupied by a first process data) may be considered the same as *postponing executing the first process and allowing executing a second.*

9. As to claims 11, 21, and 31, Horst teaches the invention substantially as stated above with regard to claims 6 and 7. The additional limitation of counting is taught since all time in a computer is measured using a clock, which inherently counts as recited.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

11. Claims 1-2, 5, 9-10, 12-14, 17, 120, 22-24, 27, 30, and 32-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horst et al., US 6,549,977 B1, in view of Gurumoorthy et al., US 6,857,058 B1.

12. As to claims 1, 5, 9-10, 12-13, 17, 20, 22-23, 27, 30, and 32-35, Horst teaches the invention substantially as described hereinabove. Horst does not disclose the additional limitations of memory table with entries pointing to data used to locate them, nor the table and memory manager working independent of an operating system and processor, nor that the table uses a physical address converted from a virtual address of a page to convert to a location address to locate the data. However, all of these limitations are taught in the analogous system of Gurumoorthy. Gurumoorthy teaches that systems require the ability to process disparate page sizes with speed (see col. 1

lines 7-21, and col. 2 lines 5-15). The solution is a mapping of a first page size into a second (see col. 5 lines 1-15), which teaches the address conversion as recited. This is independent of the operating system/processor as recited (see col. 3 lines 62-67). An artisan would have desired these elements in order to gain the ability to achieve high performance when encountering disparate page sizes in the other systems. Thus it would have been obvious to one of ordinary skill in the art at the time of the invention to add these elements to Horst, because as taught by Gurumoorthy they provide the ability to handle disparate page sizes with speed.

13. As to claims 2, 14, and 24, in the prior art combination discussed above, the placing of the data is inherently based on the structure of the memory and on the cache architecture.

14. Claims 8, 19, and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horst et al., US 6,549,977 B1.

15. As to claims 8, 19, and 29, Horst does not disclose polling the manager for the time. However, one of ordinary skill in the art would have recognized that there were only two choices, either the manager must supply the time of its own accord, or it must be asked for it (equal to polling it). The first choice may reduce bus traffic since polling may take numerous iterations until the desired time is reached. The second choice may simplify manager circuitry since for the manager to supply the time itself requires determination of how to control the sending of the time (how often, at what interval, or at what time). Thus it would have been obvious to one of ordinary skill in the art at the

time of the invention to poll the manager for the time, because this was known to simplify the circuitry of the manager as compared to alternative means.

Response to Arguments

16. Applicant's arguments with respect to all pending claims have been considered but are not persuasive. Applicants argue that Horst does not disclose determining a time to complete a memory access, and comparing it to a threshold. Examiner disagrees. Horst uses a timer to determine a read time, which is certainly a time to complete a memory access when it is less than the threshold, if not clearly a time to complete when it is more than the threshold. The read time is in all cases compared to the threshold to determine if or if not the flush should occur. Applicants argue that it is not inherent to count time from when a data access starts (pages 17 and 19 of the response). Examiner disagrees with regard to the Horst reference; clearly the determination of a time to read data must start counting when the data access starts (but the claims do not require a counter that starts counting at zero). Applicants argue that in Gurumoorthy the software implemented in an execution unit other that the system processor does not anticipate the limitation that while the first process is being executed, the memory manager managing the data blocks in parallel with an operating system and a processor. It is first noted that the claims do not require that the argued "while the first process is being executed", only the managing of the data blocks in parallel with the OS and processor. However, Examiner disagrees with the argument; clearly a separate execution unit in Gurumoorthy executes simultaneously with and thus in parallel with processors 1 and 2 (Fig. 1). Applicants argue that the statement that the

teaching of Gurumoorthy provides better performance for differing page sizes is conclusory. The statement has been slightly modified to indicate the ability to handle the differing page sizes, taught as desirable throughout the Background of Gurumoorthy.

Conclusion

17. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gary J. Portka whose telephone number is (571) 272-4211. The examiner can normally be reached on M-F 9:30 AM - 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mano Padmanabhan can be reached on (571) 272-4210. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Gary J Portka
Primary Examiner
Art Unit 2188

August 30, 2005

GARY PORTKA
PRIMARY EXAMINER